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Dear Sir:

Goodyear Tire & Rubber Co., of Akron, O., will be the operating contractor for the new $1.2 billion plant to produce uranium-235 the USAEC is building in Pike County, Ohio. When the plant is completed in about 4-years, Goodyear will be the principal employer there of approximately 4,000 persons. Goodyear, the USAEC stated, will put the individual units of the 6,500-acre plant into operation as they are completed.

A new series of nuclear detonations, in connection with the development by the USAEC of both fission and fusion (hydrogen) bombs, will be held at the testing grounds at Eniwetok Atoll, in the Marshall Islands in the western Pacific. Joint Task Force 132, under the over-all command of M/G P. W. Clarkson, will be the agency handling the tests. The tests will involve "an explosion greater than has ever been set off before", according to Representative Carl T. Durham, acting Chairman, Joint Congressional Committee on Atomic Energy. He said that the detonation would be made from a stationary platform, and that no dropping tests would be made. As to the time of the explosions, that would depend upon the weather and other conditions, Durham stated.

The nuclear reactor, which the French Atomic Energy Commission has been building, has recently been completed. Some 1,500 kilowatts in rating, it is 300 times more powerful than the first French reactor, and is expected to produce nearly 600-grams of plutonium a year.

Reflecting the increasing number of atomic energy contractors on the west coast, a San Francisco Operations Office of the USAEC has now been established. Under the jurisdiction of John Flaherty, the office will be responsible for administration of contracts with the University of California for operation of the Radiation Laboratory at Berkeley; the California Research and Development Company for operation of facilities at Livermore, Calif.; North American Aviation, Inc., for developmental work being conducted at Downey, Calif.; and for other research and development contracts in the West Coast area.

In recognition of the "present need for better integration of the various scientific disciplines involved in the study of radiation effects", the Radiation Research Society has been organized in New York. The council of the new society includes two representatives for each of the fields of physics, chemistry, biology, and medicine, and two additional members elected to represent science in general. Initial membership of the organization is said to be over 250. Officers for 1952-3 are R. E. Zirkle, president; A. Hollaender, vice president; A. Edelmann, secretary; and H. Patt, treasurer.

Providing additional electrical capacity for the Oak Ridge and other USAEC uranium-235 producer reactors, will be the Tennessee Valley Authority's Widow's Creek steam plant; now, the second unit of 112,500 kilowatts at Widow's Creek has been put on test run.

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INDUSTRIAL APPLICATIONS OF NUCLEAR ENERGY. A special digest prepared for readers of this LETTER, based upon a talk delivered by A. Tammaro, Manager, Chicago Operations, USAEC, before ASME meeting, Chicago, September 8, 1952.

Recent rapid advances in reactor technology indicate that the possibilities of nuclear power are very real. For that reason, individual engineers, industry, and privately owned utility companies should keep abreast of developments in that field.

Here are a few ways firms may get into atomic energy work:

First, what firms are eligible to work in the atomic energy program? The answer to that is -- almost any type of industrial firm. For large specialized projects, a specific type of experience may be required, but many of the industrial services and products sold to the USAEC are those routinely sold by industry.

How can a company find out if there is business for it in the atomic energy program? The best way is to inquire at the nearest Operations office of the USAEC. There are eight, all told. Three are production centers for uranium-235 and plutonium; these are Oak Ridge, Savannah, and Hanford Operations. New York Operations handles raw materials. Santa Fe is the military applications laboratory, and Idaho the Reactor Testing Station, with Schenectady operations for all mobile reactor development. Chicago Operations handles practically all of the research and development work on mobile and stationary research and power reactors and accelerators. For specialized contracts, the USAEC examines the qualifications of many companies. Therefore, it is imperative that the USAEC be aware of the abilities of interested concerns. Frequently one can learn about equipment and other unique needs and about special engineering problems by contacting an Operations office.

Concerning secrecy: Is it a barrier for uncleared companies wanting to work in the program? Secrecy is, of course, always a hindrance to over-all progress in any field, and atomic energy is no exception. It is a nuisance to an individual company working in the field, but when it becomes necessary for the USAEC to contract with an uncleared company to do classified work, prompt clearance can usually be accomplished for company officials so that they can carry out the preliminary classified discussions.

As to the opportunities for a company to do atomic energy work in its own industry apart from the Government program--let's look at the by-products of atomic energy work and how they're presently marketed. Already a number of companies have taken advantage of atomic energy developments and have placed on the market electro magnetic pumps and flow gauges for handling liquid metals. There is also being marketed a small cell which produces accurate voltages, since it is possible to generate small quantities of electricity directly from nuclear radiation. Commission supported work has also yielded results in producing medication as an antidote for over-exposure to radiation, and it is conceivable that commercial production of large quantities of such substances will be required. Then, there is the work with, or related to, radioisotopes, and nuclear reactor technology. Radioisotopes are being used in an increasingly greater number of applications.

Since it's important that a company keep advised on the atomic energy program, here are some suggestions to accomplish this: Follow the literature in this field. Then, you can, and probably should, farm out one or more of your bright young engineers or scientists for a period of a year or two to one of the USAEC's organizations carrying out research, development and construction of nuclear reactors. Some of these organizations are: Argonne National Laboratory, Oak Ridge National Laboratory, the laboratory at Bettis Field, Pa., operated for the USAEC by Westinghouse for the engineering and construction of reactors for the propulsion of naval vessels, and others. Another way to gain knowledge of nuclear subjects is to send one or more of your engineers or scientists to the Oak Ridge School of Reactor Technology, for a one-year course covering practically all aspects of reactor technology. Or, you can send a man to Oak Ridge to take a four-week course in radioisotope techniques given by the Oak Ridge Institute of Nuclear Studies.

BUSINESS BRIEFS...in the nuclear energy field...

New Firms to Undertake Study of Power Producing Reactors: A proposal by Foster-Wheeler Corp., New York, and the Pioneer Service and Engineering Co., Chicago, to conduct, during the next twelve months, a survey of the feasibility of design, construction and operation by private industry of power-producing nuclear reactors, has been accepted by the USAEC. This proposal was one of six which had been made to the USAEC after the Commission announced April 6, 1952 that additional firms were invited to make such surveys. (Completion of surveys by the original firms prompted this request for additional firms to participate. Original firm-teams were Monsanto Chemical and Union Electric; Detroit Edison and Dow Chemical; Commonwealth Edison and Public Service of N. Ill.; and Pacific Gas and Electric and Bechtel Corp.)

Uranium Being Produced From Phosphate Rock: The first commercial unit for the production of uranium from phosphate rock has begun operation as part of the plant of the Blockson Chemical Co., near Joliet, Ill. Research, engineering and construction of the unit were accomplished by Blockson which has a contract to supply the recovered uranium to the USAEC. Phosphate rock from Florida is used in the plant. Several other processors of phosphate rock have conducted research and pilot plant studies in the field of uranium recovery, and three companies are building full-scale recovery units. International Minerals & Chemical Corp. and Virginia-Carolina Chemical Corp. are incorporating uranium recovery units into plants now under construction near Mulberry, Fla., and Texas City Chemicals, Inc., is building a recovery unit at Texas City, Texas.

Healthy Industrial Growth of Nuclear Industry Predicted: Recent developments point optimistically to future industrial use of atomic energy, S. Edward Eaton, of Arthur D. Little, Inc., told the 7th National Chemical Exposition in Chicago last fortnight. Eaton is the author of numerous publications, holds several patents, and is a member of the Advisory Committee on Isotope Distribution of the USAEC. He told the Exposition that the recent announcement that the energy which could be derived from the world's recoverable uranium exceeds that of the world's reserves of coal and oil, presages future nuclear power utilization. Further, he stated, the declaration, by the group of industrial companies who have completed studies of the USAEC's secret data, that nuclear power is feasible if the reactors's by-products can be sold at a high enough price, is another pointer to future industrial use of atomic energy. (He referred to original firm-teams, as in paragraph one, above).

RAW MATERIALS...radioactive minerals for nuclear work...

UNITED STATES- Salt Lake City, Utah: Stockholders of Consolidated Uranium Mines, Inc., were advised that the firm produced 5,454 tons of uranium ore during the period Dec. 1, 1951-April 1, 1952, from Consolidated's properties at Temple Falls, Utah. President E. G. Frawley, of Consolidated, in the recently issued annual report, also noted that the total production of Consolidated and its predecessor firms, is thus boosted to 26,873 tons.....Denver, Colorado: As part of the USAEC's exploratory drilling program to increase the known amounts of uranium minerals in the U.S., additional non-core drilling is now to be done under USAEC contract in the Edgemont district, South Dakota. A minimum of 10,000-ft., and a maximum of 20,000-ft., will comprise the work.

CANADA- Intensive exploration is planned for the new pitchblende discovery of Radiore Uranium Mines on Regina Bay of Stark Lake, which in turn is connected to Great Slave Lake by a deep channel. (This is some 125 miles east of Yellowknife, Northwest Territories.) First work on this promising discovery will consist of a detailed scintillometer survey and trenching.....Baska Uranium Mines has staked 37-claims in the new St. Mary's Channel sector of Saskatchewan's Lake Athabaska area. This is an area where samplings of uranium minerals have given indications of promise.

INDIA- The facilities of Indian Rare Earths, Ltd., which were erected to process the monazite sands of Travancore, are now in operation. Meanwhile, in Ceylon, the Government built monazite pilot plant has produced some five and one-half tons of refined, thorium-rich monazite, which has been marked for shipment to United Kingdom and United States atomic energy installations.

ATOMIC PATENT DIGEST...latest U. S. grants...

A new group of 25 U. S.-Government-owned patents, developed in the course of Government-sponsored nuclear and allied research, has now been made available to firms and individuals on a royalty-free, but non-exclusive basis. Inquiries concerning such licenses should be made to the Patent Branch, USAEC, Washington 25, D.C. This new group comprises: (1) Improved portable radiation instrument, capable of holding its calibration to about 10% for prolonged periods of time under varying atmospheric conditions. U.S. Pat. No. 2,601,583. (2) Improved hermetically sealed pocket ionization chamber adapted to have low leakage and to be readily charged as well as to be easily read. U.S. Pat. No. 2,601,637. (3) Process of enriching carbon dioxide with respect to the heavy isotopes of carbon contained therein. U.S. Pat. No. 2,602,047. (4) Improvements in a high speed rotary air-bearing short hollow shaft turbine, the rotor of which is both supported and driven by air. U.S. Pat. No. 2,602,632. (5) Process for the production of zirconium tetrafluoride. U.S. Pat. No. 2,602,725. (6) Process which comprises arc welding nickel and nickel-base alloys, using a shield gas mixture containing from 5-15% by volume of hydrogen, and from 95-85% by volume of argon. U.S. Pat. No. 2,602,871. (7) An ion intensity control mechanism for mass spectrometers. U.S. Pat. No. 2,602,898. (8) Radiation counter of the Geiger-Muller type, adapted to measure the total activity of a radioactive sample, including soft radiations, such as low energy beta rays. U.S. Pat. No. 2,602,904. (9) An improved circuit for regulating the electron emission of a filament in a vacuum gauge to maintain constant the rate of ionization of a gas under varying conditions of pressure. U.S. Pat. No. 2,604,514. (10) An improved radiation detector, of the ionization chamber type, having a high degree of sensitivity. U.S. Pat. No. 2,604,598. (11) An improved full wave alternating current controlled circuit for controlling the power supplied to a load. The circuit is particularly useful for controlling the power supplied to a load. U.S. Pat. No. 2,604,612. (12) Method for the preparation of radioactive bromine. U.S. Pat. No. 2,605,219. (13) An improved system for electrically classifying, cataloging, and making an accounting of the magnitude distribution of a series of events. U.S. Pat. No. 2,605,332. (14) An improvement in circuitry for a portable radiation survey instrument which accomplishes a reduction in the response time of the device. U.S. Pat. No. 2,605,429. (15) A new and improved pulse generating circuit, to produce pulses of variable duration, controllable by a single variable element over a substantially large range. U.S. Pat. No. 2,605,499. (16) An improved apparatus for mechanically testing the solder joint between a porcelain bushing and the disk-shaped metal end plate of an insulator. U.S. Pat. No. 2,605,633. (17) An improved linear type of material separator for separating large quantities of mixed isotopes in relatively short periods of time. U.S. Pat. No. 2,606,291. (18) Improvements in the design and construction of Geiger-Muller counters and proportional counters which make it possible to operate such counters with accuracy and reliability at potentials in the range of 125 to 300-volts. U.S. Pat. No. 2,606,573. (19) A new and improved flow control indicator assembly useful under widely variable fluid flow conditions, comprising, in part, an adjustable venturi tube in combination with a universal flow indicator. U.S. Pat. No. 2,606,573. (20) An improved filler composition for voltaic cells which increases the voltage stability and recoverability of the cell. U.S. Pat. No. 2,607,809. (21) Process for quantitatively electrodepositing uranium fluoride from a dilute aqueous solution of uranyl nitrate containing dissolved sodium fluoride, the concentration thereof being in the range of 25 to 300 times the concentration of uranyl nitrate. U.S. Pat. No. 2,608,593. (22) Neutron density indicating means. U.S. Pat. No. 2,608,661. (23) Method and apparatus for measuring tightness of vessels. U.S. Pat. No. 2,608,855. (24) Injector mechanism for particle accelerators. U.S. Pat. No. 2,609,500. (25) An improved means for automatically controlling the vapor flow to a mass spectrometer. U.S. Pat. No. 2,610,300.

PRODUCTS, PROCESSES & INSTRUMENTS...in the nuclear field...

New scintillation counter, called Radimax, is adaptable to a variety of counting problems by using various counting heads available. The universal design is achieved by utilizing a single, standard phototube housing which can be fitted with any one of the following counting heads: (1) Windowless alpha, beta, gamma rotating planchet attachment, (2) three position turret head, which can contain any combination of gamma, beta, alpha, or neutron phosphors, (3) collimated medical head, (4) standard gamma head, with variable size crystals, and (5) standard beta head, with choice of anthracene or plastic phosphor. The basic unit consists of a photomultiplier tube, mu-metal magnetic shield, and dropping resistors. The universal character of the item means, the manufacturer points out, that one can have the equivalent of five or six separate scintillation counters for considerably less than the total cost of the separate counters. In addition, other attachments under development should further increase the instrument's scope, the maker states. --Nuclear Research & Development, Inc., 1094 Sutter Ave., St. Louis 5, Mo.

New console type medical radiation detector, called Isotron, for applications involving radioisotope diagnosis and therapy. This new Isotron (Model 1617) incorporates a count rate indicating circuit, a special regulated high-voltage supply, a gamma ray sensitive probe, an arm for positioning the probe, and a chart recorder to provide a continuous automatic record of the counting rates for a permanent record. Controls are mounted on the slanting top panel, and provide for selection of counting ranges, choice of time constants to achieve desired counting accuracy, and variation of high voltage. The Isotron is housed in a cabinet 4-ft. high, by 21-inches square, and storage space is provided in the cabinet for accessory supplies. The detector unit is mounted in a movable counter-poised arm for positioning anywhere about a patient's head. A choice of detectors is available.--Nuclear Instrument & Chemical Corp., Chicago 10, Ill.

New events-per-unit-time meter, model 556, is a high-speed electronic counter combined with a time base which is used to control the interval of counting. The counting rate of this model 556 is from 20 events per second, to 100,000 events per second, and the counting interval is 1-second. The instrument therefore reads the unknown repetition rate directly in events per second. The events whose rate is to be determined may be any optical, physical, or electrical occurrences. These can be translated into changing voltages, and defined directly through the model 556. The unit has been designed to automatically count and display the number of events that occur during the 1-second interval. Accuracy is said to be plus-or-minus 1 event with suitable time base.--Berkeley Scientific Div., Beckman Instruments, Inc., Richmond, Calif.

Notes: A movable laboratory unit, for operations involving radioisotopes, is now being produced by Lermac, Inc., Berkeley, Calif. This new firm, active since the Spring of this year, has recently made delivery of its first such unit to Sloan Kettering Institute for Cancer Research, according to the Institute. Lermac also does design and manufacture of other special equipment for radiation applications.

Now making a safety unit to protect operators from machine hazards, by using radiation effects, is Hazatrol Corp., Berkeley, Calif. Radium bromide in a wrist band worn by the operator, and its effect upon a Geiger-Muller tube, controls the machinery, under the operators use, so that the operator's hands must be out of the machine's danger zone before it can be operated.

NEW BOOKS & OTHER PUBLICATIONS...on nuclear and allied topics...

Glossary of Uranium & Thorium-Bearing Minerals, revised edition, by Judith Frondel, and Michael Fleischer, USGS. Prepared as part of the work on radioactive minerals undertaken by the U.S. Geological Survey for the USAEC, this second edition contains 350 entries comprising 182 species.--Director, Geological Survey, Washington, D.C. (n/c)

Sincerely,

The Staff,
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